

What is claimed is:

1. An absorbent core comprising:
  - (1) an acquisition layer;
  - (2) a storage layer having absorbent capacity, disposed beneath and in fluid communication with the acquisition layer, and
  - (3) a wicking layer disposed beneath and in fluid communication with the storage layer, comprising compressible hardwood pulp and having a density of between about 0.05 and about 0.4 g/cc, where the ratio of the vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than 10 1.25.
2. The absorbent core of claim 1, wherein the ratio of vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than 3.0.
3. The absorbent core of one of claims 1, wherein the compressible hardwood pulp is selected from the group consisting of eucalyptus, birch, aspen, maple, cotton wood, willow, oak, beech, poplar, basswood and combinations thereof.
4. The absorbent core of claim 3, wherein the compressible hardwood pulp is eucalyptus.
5. The absorbent core of one of claims 1, wherein the wicking layer further comprises softwood fibers.
6. The absorbent core of one of claims 1, wherein the wicking layer is imprinted with a compression pattern.
7. The absorbent core of one of claims 1, wherein the core has a rewet value of about 3.0 g or less.
- 25 8. The absorbent core of claim 7, wherein the core has a rewet value of about 2.0 g or less.
9. The absorbent core of claim 8, wherein the core has a rewet value of about 1.0 g or less.

10. The absorbent core of one of claims 1, wherein the wicking layer has a density of between 0.1 and 0.3 g/cc.

11. The absorbent core of one of claims 1, wherein the absorbent core is a unitary absorbent core produced in a series of unit operations in a continuous process. *QSF*

5 12. An absorbent article comprising:

(A) a liquid permeable top sheet,

(B) a liquid impermeable back sheet, and

(C) an absorbent core disposed between the topsheet and the backsheet, comprising:

(1) an acquisition layer disposed beneath and in fluid communication with the

10 topsheet;

(2) a storage layer having absorbent capacity disposed beneath and in fluid communication with the acquisition layer, and

(3) a wicking layer disposed beneath and in fluid communication with the storage layer, comprising compressible hardwood pulp and having a density of between

15 0.05 and 0.4 g/cc, where the ratio of the vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than 1.25.

13. The article of claim 12, wherein the article is selected from the group consisting of infant diapers, training pants, adult incontinence briefs, feminine hygiene pads, surgical drapes and wound dressings. *✓*

20 14. A method of making an absorbent core comprising:

(A) forming a wicking layer comprising compressible hardwood fibers;

(B) compressing the wicking layer to a density of between 0.05 and 0.4 g/cc;

(C) forming a storage layer having absorbent capacity and in effective fluid communication with the wicking layer; and

25 (D) forming an acquisition layer in fluid communication with the storage layer, where the ratio of the vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than 1.25.

15. The method of claim 14 wherein the ratio of vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than

30 3.0.

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16. The method of one of claims 14, wherein the compressible hardwood pulp is selected from the group consisting of eucalyptus, birch, aspen, maple, cotton wood, willow, oak, beech, poplar, basswood and combinations thereof.

17. The method of claim 16, wherein the compressible hardwood pulp is eucalyptus.

5 18. The method of one of claims 14, wherein the wicking layer further comprises softwood fibers.

19. The method of claim 18 wherein the softwood fibers are chemically treated.

20. The method of one of claims 14, wherein the core has a rewet value of about 3.0 g or less.

10 21. The method of claim 20, wherein the core has a rewet value of about 2.0 g or less.

22. The method of claim 21, wherein the core has a rewet value of about 1.0 g or less.

23. The method of one of claims 14, wherein the absorbent core is a unitary absorbent core produced in a series of unit operations in a continuous process.

24. The method of claim 23, wherein the process is an airlaid process. ✓

15 25. The method of one of claims 14 wherein the wicking layer is imprinted with a compression pattern. *Q by Process*

26. An absorbent core made by the method of one of claims 14.

27. A method of making an absorbent article comprising:

20 (A) providing a liquid impervious back sheet;

(B) forming a wicking layer comprising compressible hardwood fibers;

(C) compressing the wicking layer to a density of between 0.05 and 0.4 g/cc;

(D) forming a storage layer having absorbent capacity and in fluid communication with the wicking layer; and

(E) forming an acquisition layer in fluid communication with the storage layer,

25 and

(F) providing a liquid pervious top sheet in fluid communication with the acquisition layer,

where the ratio of the vertical wicking height of the wicking layer to the vertical wicking height of the storage layer is equal to or greater than 1.25.

30 28. An absorbent article made by the method of claim 27.

29. An absorbent core comprising:

- (1) an acquisition layer;
- (2) a storage layer having absorbent capacity disposed beneath and in fluid communication with the acquisition layer; and

5 (3) a wicking layer disposed beneath and in fluid communication with the storage layer, comprising compressible hardwood pulp.

30. The absorbent core of claim 29, wherein the wicking layer comprises from about 50 percent by weight to about 99.9 percent by weight of hardwood fibers and from about 0.1 percent by weight to about 50 percent by weight synthetic fibers, the storage layer 10 includes materials selected from the group consisting of synthetic fibers, chemically treated cellulosic fibers, wood pulp, superabsorbents and combinations thereof, and has a density of between 0.05 and 0.25 g/cc, and the acquisition layer includes materials selected from the group consisting of cross-linked cellulose fibers, synthetic fibers, and combinations thereof, and has a density of between 0.04 to 0.1 g/cc.

15 31. A method of making an absorbent core comprising:

- (A) forming a wicking layer comprising compressible hardwood fibers;
- (B) compressing the wicking layer to a density of between 0.05 and 0.4 g/cc;
- (C) forming a storage layer having absorbent capacity and in fluid communication with the wicking layer; and

20 (D) forming an acquisition layer in fluid communication with the storage layer.

32. The method of claim 31, wherein the absorbent core is a unitary absorbent core produced in a series of unit operations in a continuous process.

33. The method of one of claims 31, wherein the process is an airlaid process.

34. The method of claim 31, wherein the wicking layer is imprinted with a 25 compression pattern.

35. An absorbent core comprising:

- (1) an acquisition layer;
- (2) a storage layer having absorbent capacity disposed beneath and in fluid communication with the acquisition layer; and

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(3) a web imprinted wicking layer disposed beneath and in fluid communication with the storage layer, comprising compressible wood pulp in which there is a pattern of densified regions and less densified regions.

36. The absorbent core of claim 31, wherein the wicking layer comprises from about 5 50 percent by weight to about 99.9 percent by weight of wood fibers and from about 0.1/ percent by weight to about 50 percent by weight synthetic fibers, the storage layer includes materials selected from the group consisting of synthetic fibers, chemically treated cellulosic fibers, wood pulp, superabsorbents, and combinations thereof, and has a density between 0.05 and 0.25 g/cc, (and the acquisition layer includes material selected 10 from the group consisting of crosslinked cellulose fibers, synthetic fibers, and combinations thereof and has a density of between 0.04 and 0.1 g/cc.)

37. A method of making an absorbent core comprising:

- (A) forming a wicking layer comprising compressible wood fibers;
- (B) compressing the wicking layer to a density of between 0.05 and 0.4 g/cc, 15 claim compression taking place between a forming or transfer fabric and a compaction roll to form a web imprinted wicking layer with a pattern of densified regions and less densified regions;
- (C) forming a storage layer having absorbent capacity in fluid communication with the wicking layer; and
- 20 (D) forming an acquisition layer in fluid communication with the storage layer.

38. The method of claim 37, wherein the absorbent core is a unitary absorbent core produced in a series of unit operations in a continuous process.

39. The method of claim 38, wherein the process is an airlaid process.

40. The method of claim 37 wherein claim compression takes place between a 25 patterned compaction roll and a smooth roll.

41. The method of claim 37 wherein claim compression takes place between two patterned compaction rolls.

42. An absorbent core made by the method of claim 31 or claim 37.